

Abstract of the Disclosure

Provided are a method for manufacturing a high k-dielectric oxide film, a capacitor having a dielectric film formed using the method, and a method for manufacturing the capacitor. A high k-dielectric oxide film is manufactured by (a) loading a semiconductor substrate in an ALD apparatus, (b) depositing a reaction material having a predetermined composition rate of a first element and a second element on the semiconductor substrate, and (c) forming a first high k-dielectric oxide film having the two elements on the semiconductor substrate by oxidizing the reaction material such that the first element and the second element are simultaneously oxidized. In this method, the size of an apparatus is reduced, productivity is enhanced, and manufacturing costs are lowered. Further, the high k-dielectric oxide film exhibits high dielectric constant and low leakage current and trap density. Thus, a capacitor including the high k-dielectric oxide film as a dielectric film also exhibits low leakage current and trap density.